

Notice of Allowability

Application No.

10/724,043

Applicant(s)

MARTON ET AL.

Examiner

Daniel Swerdlow

Art Unit

2646

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to application filed 1 December 2003.
2. ☒ The allowed claim(s) is/are 1-31.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
- ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
- ☒ Examiner's Amendment/Comment
- ☒ Examiner's Statement of Reasons for Allowance
- ☐ Other _____

Daniel Swerdlow
Examiner
Art Unit: 2646

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Joseph A. Scarfetta, Jr., reg. no. 26,803 on 22 September 2005.

The application has been amended as follows:

2. Claim 1 is amended as follows:
3. In the second line replace "decimeter" with --decimator--.
4. In the seventh line insert --filtered-- before "input sub-signal".
5. In the twelfth line insert --filtered-- before "echo added input signal".
6. Claim 12 is amended as follows:
7. In the first line replace "module" with --model--.
8. Claim 22 is amended as follows:
9. In the seventh line insert --filtered-- before "input sub-signal".
10. In the twelfth line insert --filtered-- before "echo added input signal".

The following changes to the drawings have been approved by the examiner and agreed upon by applicant:

11. Figures 2 through 5 will be redone to eliminate lines of poor quality and numbers, letters, and reference characters less than 0.32 cm in height in accordance with 37 CFR 1.84.

12. In order to avoid abandonment of the application, applicant must make these above agreed upon drawing changes.

13. The following is an examiner's statement of reasons for allowance:

14. Regarding Claim 1, Troxel discloses an acoustic (i.e., audio) echo canceller comprising: a sample rate down converter (Fig. 3, reference 55) that corresponds to the first decimator claimed and down converts the sample rate of (i.e., decimates) a near-end signal $D(k)F$ that corresponds to the echo added input signal claimed to produce a signal $D(k)$ that corresponds to the input sub-signal claimed; a static filter (Fig. 3, reference 57) that corresponds to the acoustic echo model claimed and produces a signal $Y(k)$ that corresponds to the echo estimate claimed; a combiner (Fig. 3, reference 58) that corresponds to the first subtractor claimed and subtracts signal $Y(k)$ that corresponds to the echo estimate claimed from signal $D(k)$ that corresponds to the input sub-signal claimed; a highpass filter (Fig. 3, reference 57) that corresponds to the second filter claimed and filters the near-end signal $D(k)F$ that corresponds to the echo added input signal claimed; a sample rate up converter (Fig. 3, reference 56) that corresponds to the interpolator claimed and up converts the sample rate of (i.e., interpolates) the error signal $E(k)$ that corresponds to the output sub signal claimed to generate an up converted signal that corresponds

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to the interpolator output signal claimed; and an adder (Fig. 3, reference 53) that corresponds to the adding device claimed and adds the near-end signal $D(k)F$ that corresponds to the echo added input signal claimed to the up converted signal that corresponds to the interpolator output signal claimed. Therefore, Troxel anticipates all elements of Claim 1 except a first filter to filter the input sub signal and a second subtractor to subtract the filtered input sub signal from the output of the first subtractor. US Patent 5,572,545 to Hachem et al. discloses an echo canceller (Fig. 2) including a subtractor (Fig. 2, reference 52) that corresponds to the second subtractor claimed and subtracts a signal $S_p(n)$ output by a filter P_i (Fig. 2, reference 50) from a signal output by a subtractor (Fig. 2, reference 58) that corresponds to the first subtractor claimed. However, the filtered signal $S_p(n)$ is a filtered version of reference signal $A(n)$ that corresponds to a far end signal (e.g., reference 5131 in applicant's Fig. 5) and, as such, does not correspond to the input sub-signal claimed. As such, the prior art does not teach a first filter configured to filter the input sub-signal as claimed. Further, there is no motivation in the references or in the knowledge of one of ordinary skill in the art to alter the filter P_i disclosed in Hachem to take its input from the receive port (Fig. 2, reference 46) that corresponds to the input sub-signal claimed. Therefore, the claim is allowable.

15. Claim 22 is essentially similar to Claim 1 and is allowable for the same reasons.

16. The remaining claims are allowable due to dependence from their respective base claims.

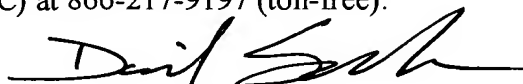
17. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Swerdlow whose telephone number is 571-272-7531. The examiner can normally be reached on Monday through Friday between 7:30 AM and 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh H. Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Daniel Swerdlow
Examiner
Art Unit 2646

ds
22 September 2005